

CLAIMS

1. A method for handling context of data packet flows, said flows being simultaneous and belonging to the same session, between terminals through a network structure comprising at least a network comprising a number of routers for routing data packet flows between the routers along data packet flow paths connecting said terminals, of which terminals at least one is mobile and may change access between different access points of said network structure, wherein an access point comprises an access router and a middlebox, which is controlled and supported by an associated Midcom Agent belonging to a domain of said network structure, **characterized** by the steps of:

- dividing the total context associated to a session into common context, which is common to all flows of the session, and one dynamic context per data packet flow of the session(step 100);
- storing said common context in a Midcom Agent of a first domain of the network structure(step 102);
- storing each dynamic context in a middlebox through which the associated flow passes(step 104).

2. A method according to claim 1, characterized by the step of:

- transferring dynamic context associated to a data packet flow, when a data packet flow is moved from a middlebox in the first domain to another middlebox in an access point in said first domain or to a middlebox of an access point in a second domain(step 106).

3. A method according to claim 2, characterized by the steps of:

- keeping in said Midcom Agent of the first domain the common context of data packet flows of a session and the control of the dynamic context of each flow in middleboxes through which the data packets of the session flows as long as there is one flow belonging to said session in said first domain (step 110).

4. A method according to claim 2, characterized by the steps of:

- determining whether all flows belonging to the session are moved from the first domain, or not(step 108);

- Transferring the common context of a session flow and the control of the associated dynamic context stored in the middleboxes through which the data packets of the session flows from the Midcom Agent of the first domain to a Midcom Agent of a second domain having at least one of said flows, if all said flows have been transferred from said first domain (step 112);
- establishing communication between the two Midcom Agents MA1 and MA2 (step 114).

10 5. A method according to claim 4, characterized by the steps of:

- obtaining by means in the middleboxes the address of the Midcom Agent in the first domain from the dynamic context transfer between middleboxes in the first and second domain;
- using said address for registering with and establishing communication with said Midcom Agent of said second domain.

15 6. A method according to claim 4, characterized by the steps of:

- obtaining by means in the middleboxes the address of the Midcom Agent in the first domain from the dynamic context transfer between middleboxes in the first and second domain;
- sending by means in the Midcom Agent in the second domain a request to the Midcom Agent of the first domain, said request containing the address of the Midcom Agent of the second domain, for registering and establishing communication with the Midcom Agent of said second domain.

20 7. A method according to claim 4, characterized by the steps of:

- obtaining by means in the middleboxes the domain address of the Midcom Agent of the first domain from a database storing the domain addresses of all the Midcom Agents in the network structure;
- using said address for registering with and establishing communication with said Midcom Agent of said second domain.

25 8. A method according to claim 4, characterized by the steps of:

- obtaining by means in the middleboxes the domain address of the Midcom Agent of the first domain from a database storing the domain addresses of all the Midcom Agents in the network structure;
- sending a request to the Midcom Agent of the first domain, said request containing said address, for registering and establishing communication with the Midcom Agent of said second domain.

9. A network system for handling context of data packet flows according to the method of claim 1, **characterized** in that the network system comprises:

- Means for dividing the total context associated to a session into common context, which is common to all flows of the session, and one dynamic context per data packet flow of the session;
- Means for storing said common context in a Midcom Agent of a first domain of the network structure;
- Means for storing each dynamic context in a middlebox through which the associated flow passes.

10. A network system according to claim 9, characterized in that the network system comprises:

- Means for transferring dynamic context associated to a data packet flow, when a data packet flow is moved from a middlebox in the first domain to another middlebox in an access point in said first domain or to a middlebox of an access point in a second domain.

11. A network system according to claim 10, characterized in that the network system comprises:

- Means for keeping in said Midcom Agent of the first domain the common context of data packet flows of a session and the control of the dynamic context of each flow in middleboxes through which the data packets of the session flows as long as there is one flow belonging to said session in said first domain.

12. A network system according to claim 10, characterized in that the network system comprises:

- Means for determining whether all flows belonging to the session are moved from the first domain, or not;
- Means for Transferring the common context of a session flow and the control of the associated dynamic context stored in the middleboxes through which the data packets of the session flows from the Midcom Agent of the first domain to a Midcom Agent of a second domain having at least one of said flows, if all said flows have been transferred from said first domain;
- Means for establishing communication between the two Midcom Agents MA1 and MA2 (step 114).

13. A network system according to claim 12, characterized in that the network system comprises:

- Means for obtaining by means in the middleboxes the address of the Midcom Agent in the first domain from the dynamic context transfer between middleboxes in the first and second domain;
- Means for using said address for registering with and establishing communication with said Midcom Agent of said second domain.

14. A network system according to claim 12, characterized in that the network system comprises:

- Means for obtaining by means in the middleboxes the address of the Midcom Agent in the first domain from the dynamic context transfer between middleboxes in the first and second domain;
- means in the Midcom Agent in the second domain for sending a request to the Midcom Agent of the first domain, said request containing the address of the Midcom Agent of the second domain, for registering and establishing communication with the Midcom Agent of said second domain.

15. A network system according to claim 12, characterized in that the network system comprises:

- Means for obtaining by means in the middleboxes the domain address of the Midcom Agent of the first domain from a database storing the domain addresses of all the Midcom Agents in the network structure;

- Means for using said address for registering with and establishing communication with said Midcom Agent of said second domain.

16. A network system according to claim 12, characterized in that the network
5 system comprises:

- Means for obtaining by means in the middleboxes the domain address of the Midcom Agent of the first domain from a database storing the domain addresses of all the Midcom Agents in the network structure;
- Means for sending a request to the Midcom Agent of the first domain, said request containing said address, for registering and establishing communication with the Midcom Agent of said second domain.

15 17. A Midcom Agent for handling context of data packet flows in a network system according to claim 9, characterized in that the network system
comprises:

- Means for dividing the total context associated to a session into common context, which is common to all flows of the session, and one dynamic context per data packet flow of the session;
- Means for storing said common context in a Midcom Agent of a first domain of the network structure;
- Means for storing each dynamic context in a middlebox through which the associated flow passes.

25 18. A Midcom Agent according to claim 17, characterized by:
- Means for control the transfer of dynamic context associated to a data packet flow, when a data packet flow is moved from a middlebox in the first domain to another middlebox in an access point in said first domain or to a middlebox of an access point in a second domain.

30 19. A Midcom Agent according to claim 18, by:
- Means for keeping in said Midcom Agent of the first domain the common context of data packet flows of a session and the control of the dynamic context of each flow in middleboxes through which the

data packets of the session flows as long as there is one flow belonging to said session in said first domain.

20. A Midcom Agent according to claim 18, characterized by:

- Means for determining whether all flows belonging to the session are moved from the first domain, or not;
- Means for Transferring the common context of a session flow and the control of the associated dynamic context stored in the middleboxes through which the data packets of the session flows from the Midcom Agent of the first domain to a Midcom Agent of a second domain having at least one of said flows, if all said flows have been transferred from said first domain;
- Means for establishing communication between the two Midcom Agents MA1 and MA2 (step 114).

15 21. A Midcom Agent according to claim 20, characterized by:

- Means for obtaining by means in the middleboxes the address of the Midcom Agent in the first domain from the dynamic context transfer between middleboxes in the first and second domain;
- Means for using said address for registering with and establishing communication with said Midcom Agent of said second domain.

20 22. A Midcom Agent according to claim 20, characterized by:

- Means for obtaining by means in the middleboxes the address of the Midcom Agent in the first domain from the dynamic context transfer between middleboxes in the first and second domain;
- means in the Midcom Agent in the second domain for sending a request to the Midcom Agent of the first domain, said request containing the address of the Midcom Agent of the second domain, for registering and establishing communication with the Midcom Agent of said second domain.

25 30 23. A Midcom Agent according to claim 20, characterized by:

- Means for obtaining by means in the middleboxes the domain address of the Midcom Agent of the first domain from a database

storing the domain addresses of all the Midcom Agents in the network structure;

- Means for using said address for registering with and establishing communication with said Midcom Agent of said second domain.

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24. A Midcom Agent according to claim 20, by:

- Means for obtaining by means in the middleboxes the domain address of the Midcom Agent of the first domain from a database storing the domain addresses of all the Midcom Agents in the network structure;
- Means for sending a request to the Midcom Agent of the first domain, said request containing said address, for registering and establishing communication with the Midcom Agent of said second domain.

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25. A computer program product comprising computer executable software stored on a computer readable medium, the software being adapted to run at a computer or other processing means characterized in that when said computer executable software is loaded and read by said computer or other processing means, said computer or other processing means is able to perform the steps of the method according to any of claims 1-8.

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26. A computer program product stored on a computer usable medium, comprising readable program for causing a processing means within a network node to control the execution of the steps of any of claims 1-8.

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